



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,854	01/16/2004	Janusz Murakowski	00131-00281-US1	1853

30678 7590 08/23/2005

CONNOLLY BOVE LODGE & HUTZ LLP  
SUITE 800  
1990 M STREET NW  
WASHINGTON, DC 20036-3425

EXAMINER
----------

TOLEDO, FERNANDO L

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

# Office Action Summary

Application No.

10/707,854

Applicant(s)

MURAKOWSKI ET AL.

Examiner

Fernando L. Toledo

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20040122.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 1 – 4 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 16 August 2005.
2. Applicant's election without traverse of claims 5 – 16 in the reply filed on 16 August 2005 is acknowledged.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 5 – 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakowski et al. (Etchless Fabrication of Slab Photonic Crystals in Silicon).
5. In re claim 5, Murakowski, in the article "Etchless Fabrication of Slab Photonic Crystals in Silicon" discloses providing a substrate; applying a first film on the substrate; applying a second film on the first film; exposing a pattern including several holes on the second film; developing the exposed pattern using a solvent, wherein the dissolution rate of the first film in the solvent is greater than a dissolution rate of the second film in the solvent, wherein a

Art Unit: 2823

development time of the exposed pattern is selected to form a continuously suspended membrane from undissolved portions of the second film, the continuously suspended membrane being separated from the substrate by a void area (§ 2, second page).

6. In re claim 6, Murakowski discloses the waveguiding layer having an index of refraction greater than an index of refraction of the continuously suspended membrane, wherein several of holes are free of any of the waveguiding layer (Figure 2).

7. In re claim 7, Murakowski, discloses wherein the applying first film includes applying a copolymer film (§2, second page).

8. In re claim 8, Murakowski, discloses wherein the applying a first film includes applying an MMA/MAA film (§2, second page).

9. In re claim 9, Murakowski, discloses wherein the applying of a second film includes applying PMAA (§2, second page).

10. In re claim 10, Murakowski, discloses wherein the exposing pattern includes exposing the pattern by a lithographic technique (§2, second page).

11. In re claim 11, Murakowski discloses wherein the exposing a pattern includes exposing the pattern by e-beam lithography (§2, second page).

12. In re claim 12, Murakowski, discloses wherein the applying a waveguiding layer includes applying a layer of a semiconductor material (§2, second page).

13. In re claim 13, Murakowski, discloses wherein the applying a waveguide layer includes applying a layer of silicon (§2, second page).

Art Unit: 2823

14. In re claim 14, Murakowski, discloses wherein the developing the exposed pattern includes removing essentially all of the first film between the substrate and the second film except around a supported peripheral area of the continuously suspended membrane (¶2, second page).

15. In re claim 15, Murakowski discloses further including defining a waveguiding function of the planar photonic bandgap structure by arranging several of holes in the exposed pattern (Figure 2).

16. In re claim 16, Murakowski discloses a planar photonic bandgap structure produced by the method of any one of claims 5 – 15 (Figure 2).

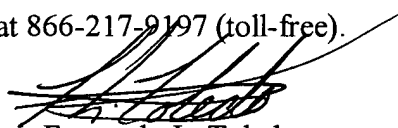
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fernando L. Toledo whose telephone number is 571-272-1867. The examiner can normally be reached on Mon-Thu 7am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2823

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fernando L. Toledo  
Examiner  
Art Unit 2823

flt  
19 August 2005